Loss Simulator

2010 Casualty Loss Reserve Seminar

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http://www.goouon.com

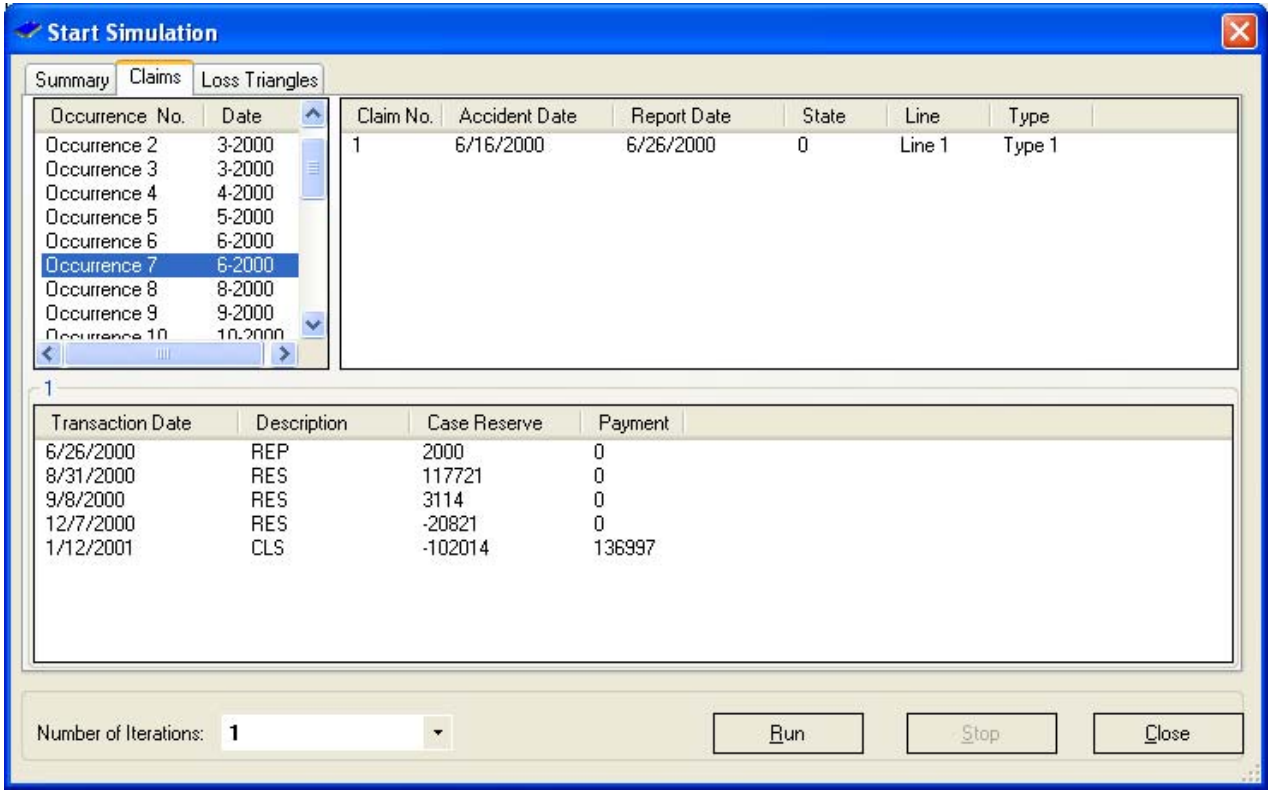
If you cannot explain it simply, you don’t understand it well enough

--Albert Einstein

What do we try to simulate?

All about raw claims

- Occurrences
- Claims
- Transactions (such as case reserve, payments, adjustments, etc)



Where is the passion (value)?

This system will underlie the loss triangles and other statistics used to estimate loss reserves

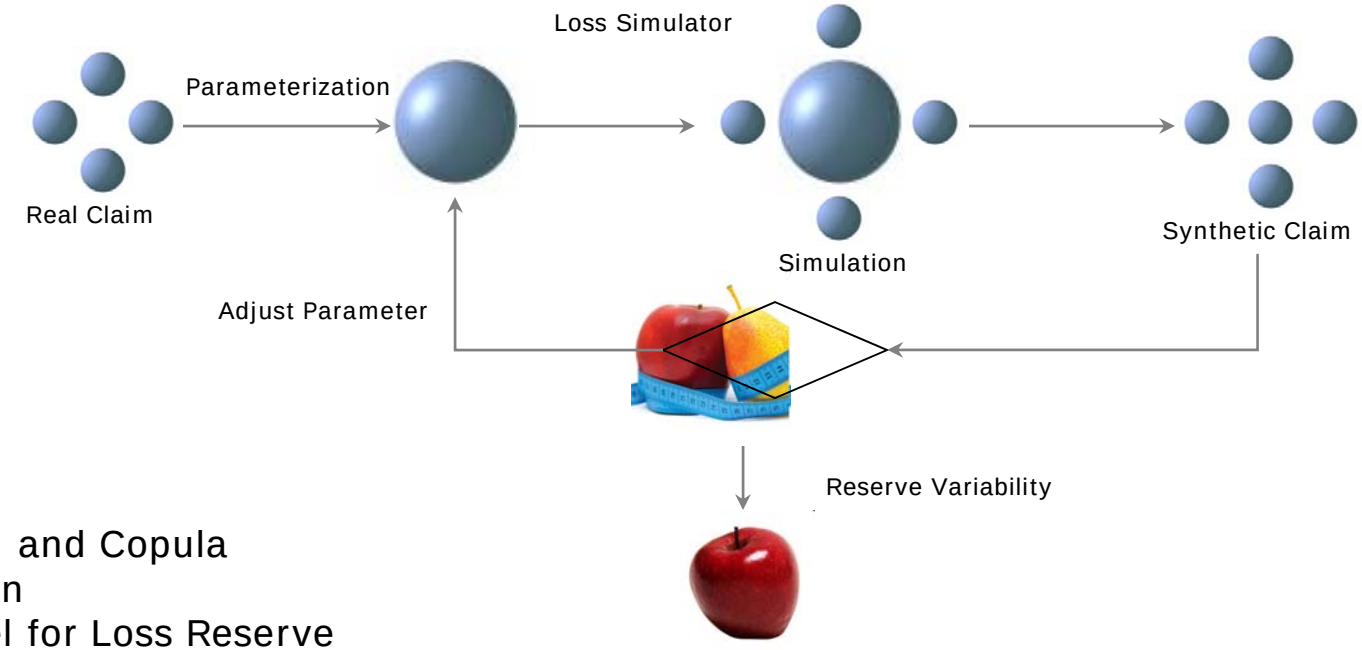
• A platform that can generate synthetic claims

• The generated claims will have the same statistical characteristic as the company real claim data, in regarding to lags, payments, frequency, case reserves, adjustment, etc, etc.

• The generated claims could be summarized into loss development triangles and complete rectangles, which could then be used to test loss reserving methods and models.

• Aid people in better understanding the underlying loss development process.

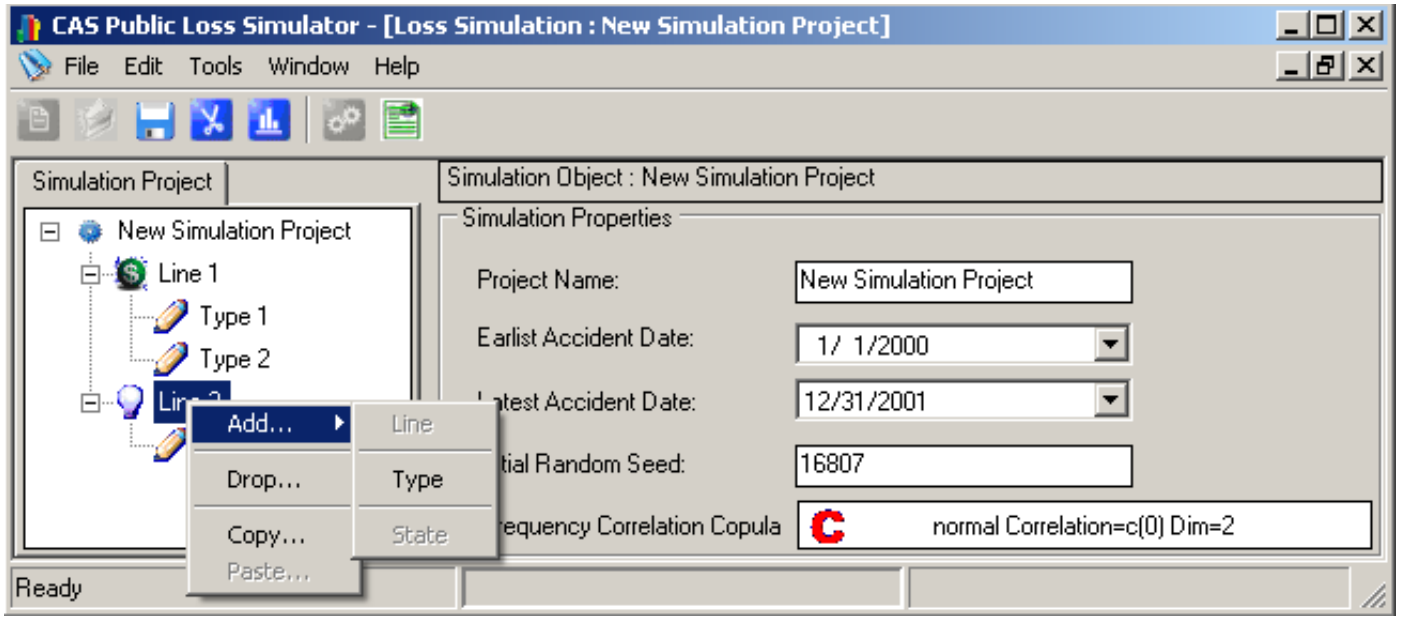
Vision and Enhancement



- Copula, Copula, and Copula
- Parameterization
- Predictive Model for Loss Reserve
- Challenges
    1. Real claim process is very complicated
    2. Modeling variance
    3. Parameter variance
    4. Process variance
    5. Unquantifiable variance

Example

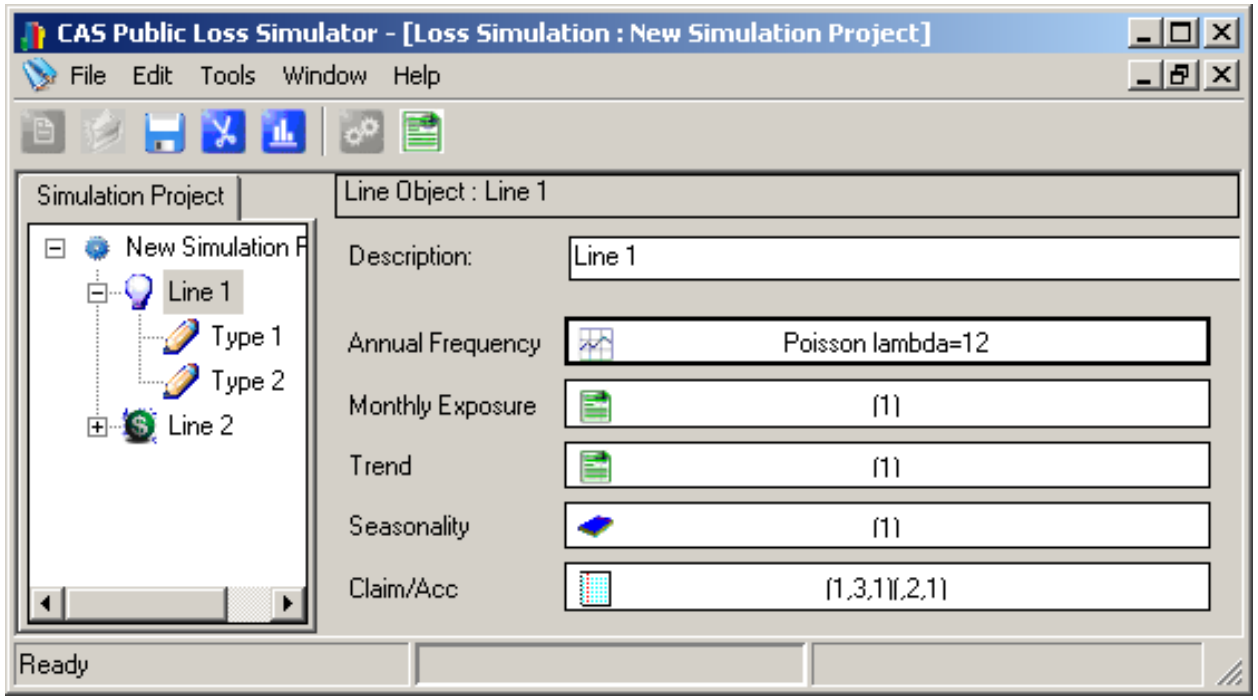
Simulation Project Parameters Setup.



- Windows Standard UI
- Tree Structure
- Accident Year Range
- Random Seed
- Line Level Frequency Correlations from Copula

Example continue

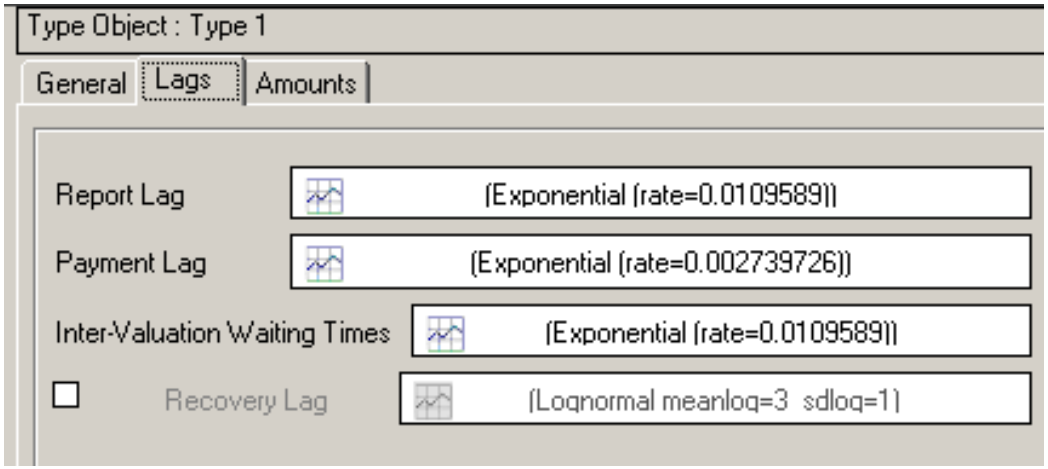
Line Level Parameters Setup.



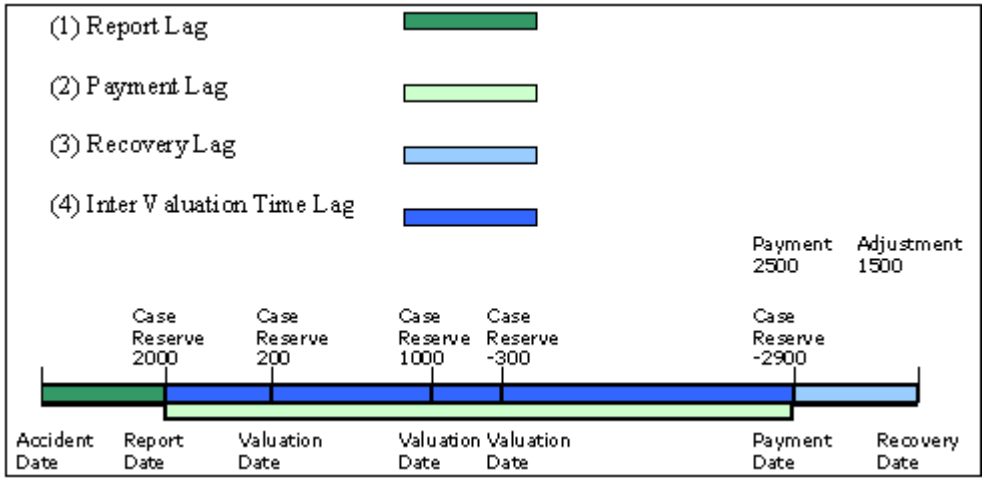
- Annual Frequency
- Exposure, Trend, and Seasonality
- Multinomial Claim Distribution

Example continue

Coverage Level Parameters Setup.

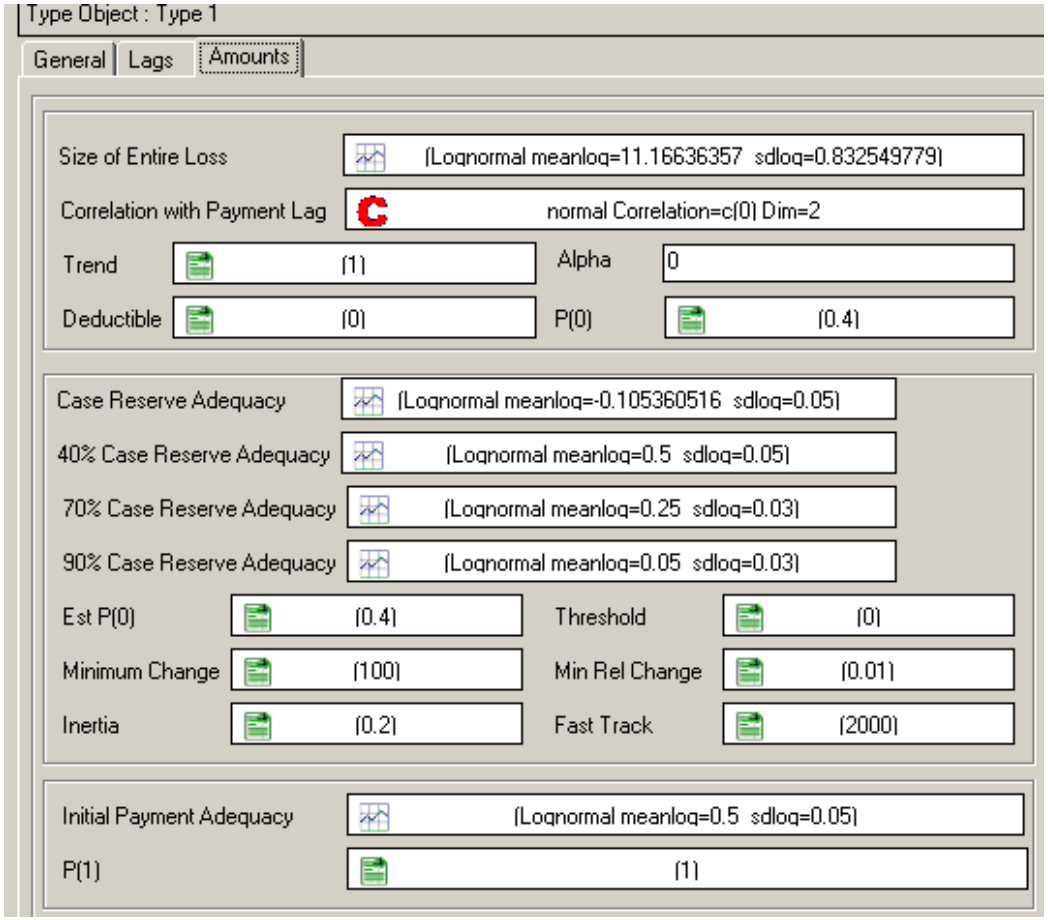


Lags



Example continue

Coverage Level Parameters Setup.



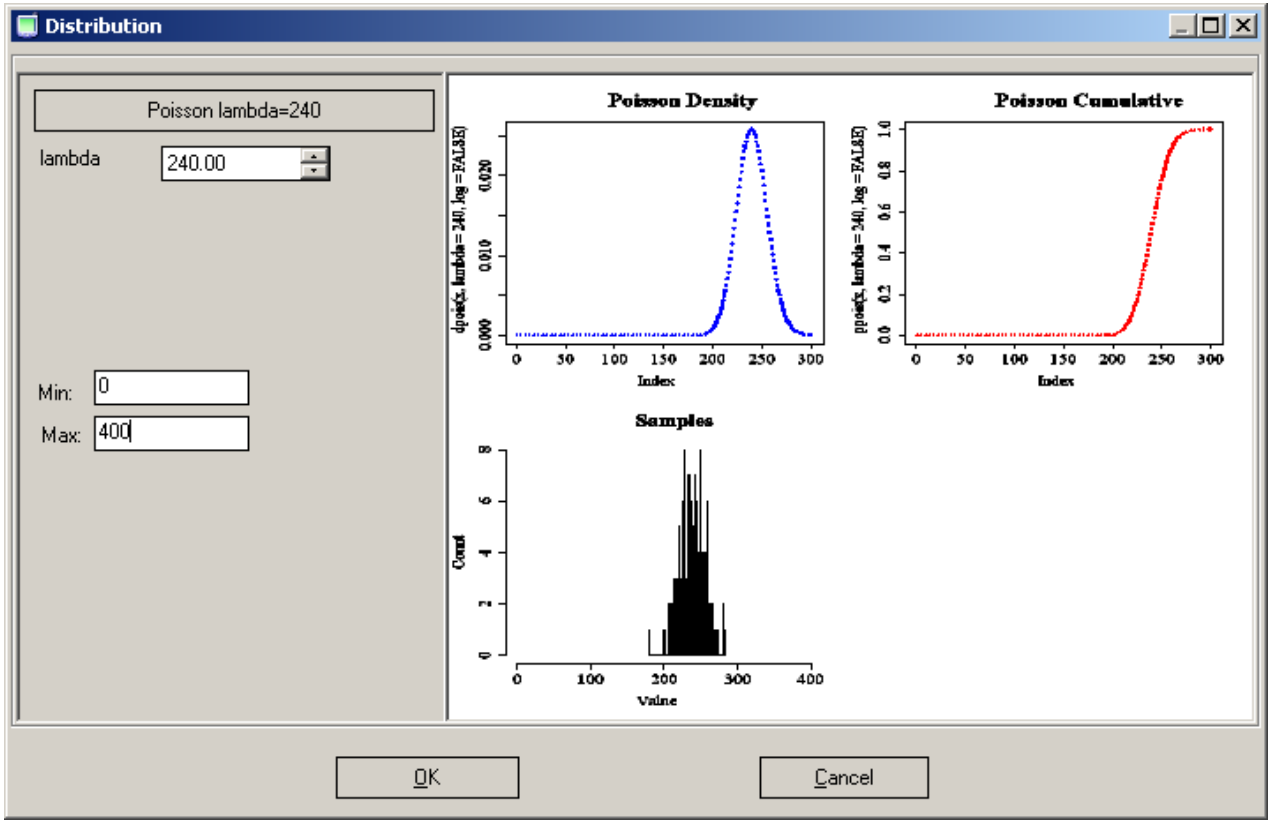
Severity Properties

Case Reserve Interpolations

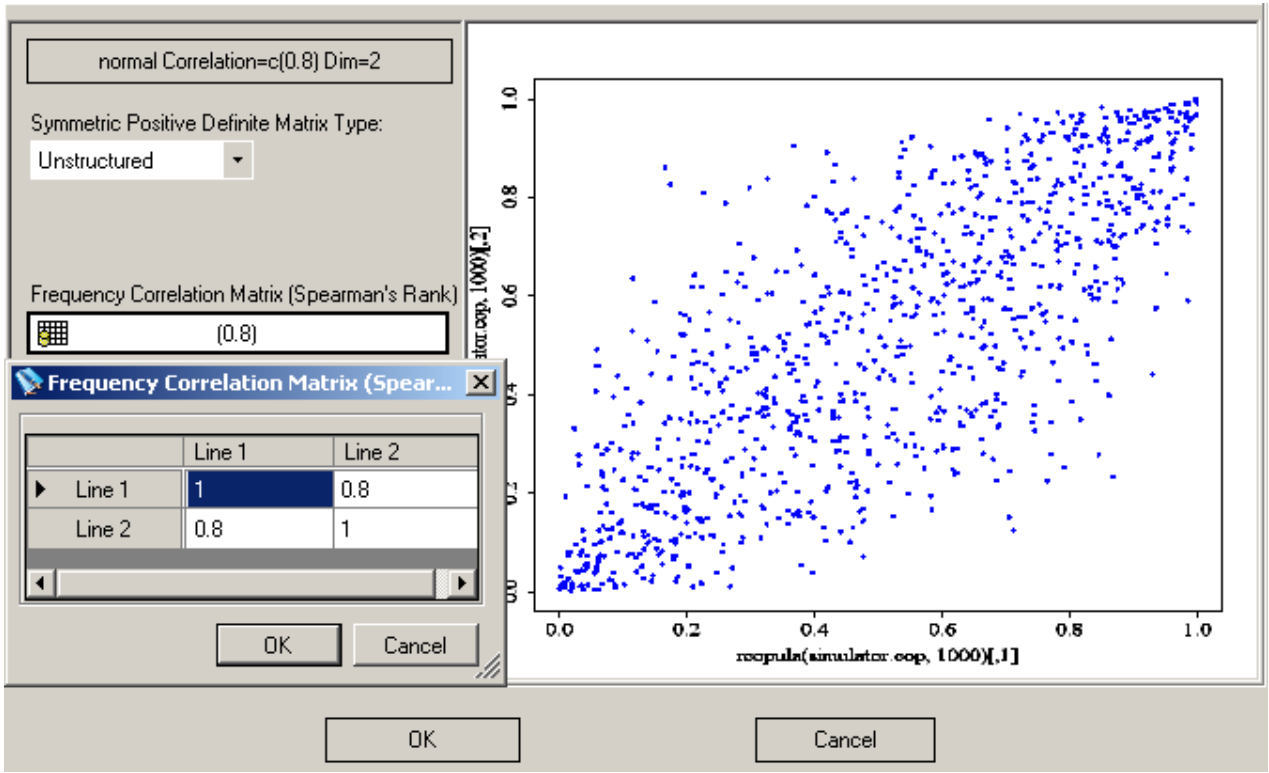
Recovery Properties

Example continue -- Distribution

A Poisson Distribution (lambda=240)



Example continue -- Copula



A Normal Copula

Frequencies among lines.

Payment lag and size of claim.

Complicated Fact of Statistics

The weather forecast:

It has 35% chance to rain tomorrow.

My question is: should I bring my umbrella or not?